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THE PLANT DISEASE REPORTER

Issued By

THE PLANT DISEASE SURVEY

Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING

AGRICULTURAL RESEARCH ADMINISTRATION

UNITED STATES DEPARTMENT OF AGRICULTURE

SUPPLEMENT 162

A CONTRIBUTION TO THE FUNGUS FLORA
OF UTAH AND NEVADA

Supplement 162

June 15, 1946

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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Plant Industry Station

Beltsville, Maryland

A CONTRIBUTION TO THE FUNGUS FLORA
OF UTAH AND NEVADA

Arthur S. Rhoads¹

Plant Disease Reporter
Supplement 162

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The following fungi listed comprise miscellaneous collections during the latter part of 1944 and the first half of 1945. Records from a few collections made by others and turned over to the writer for determination have been included by reason of their interest. Unless otherwise stated, the fungi listed were collected in Utah, and by the writer.

Unfortunately, mycology has received very little attention in these States and little or nothing has been accumulated in the way of herbarium material of fungi at the various institutions in these respective States. Dr. L. O. Overholts expressed the opinion that Utah is more poorly represented in polypore collections in the various herbaria of the country than any other State. Utah is fortunate, however, in that Prof. A. C. Garrett, of Salt Lake City, has collected rusts and smuts over a period of approximately 40 years, and much of our knowledge of these groups of plant diseases in this State is based upon material collected by him.

Specimens of the fungi here reported have been deposited in the Mycological Collections at Washington and duplicates of most of them in

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the newly established herbarium of fungi at the Utah Agricultural Experiment Station. Parts of many of the collections have also been sent to various interested workers. Grateful acknowledgment is made to Dr. F. D. Kern for confirmation of the Gymnosporangiums, to Dr. G. B. Cummins for confirmation of many of the other rusts, and to Drs. W. A. Murrill and L. O. Overholts for identifications and confirmations of the polypores and agarics. The writer is also greatly indebted to Mr. Arthur H. Holmgren, Botanist of the Utah Agricultural Experiment Station, for his interest and kindness in identifying many of the host plants.

PHYCOMYCETES

Albugo candida (Pers. ex Lévl.) O. Kuntze:

On Camelina microcarpa Anderjez., Logan, Cache Co., June 28.

Peronospora trifoliorum DBy.:

On Medicago sativa L., between Farmington and Kaysville, Davis Co., June 15. Specimens were also sent in from Salt Lake Co. earlier. This disease was troublesome in some plantings owing to abnormally heavy spring rainfall and necessitated early cutting of the first crop.

ASCOMYCETES

Cucurbitaria elongata (Fr.) Grev.:

On Acer negundo L., occurring abundantly on slash, above forks of creek 1 mile above Rotary Park in City Creek Canyon near Salt Lake City, Salt Lake Co., June 17.

Dasyscypha agassizii (Berk. & Curt.) Sacc.:

On Abies lasiocarpa (Hook.) Nutt., on stem of small dead tree, 1 1/2 miles west of Logan Canyon on Tony Grove Lake Road, Cache Co., June 24.

Dasyscypha arida (Phill.) Sacc.:

On fallen branches of Abies lasiocarpa (Hook.) Nutt., Tony Grove Lake, Bear River Range, and 1 1/2 miles west of Logan Canyon on Tony Grove Lake Road, Cache Co., June 24.

Dasyscypha incarnata Clements:

On Pseudotsuga taxifolia (Poir.) Britt., occurring on decorticated limbs, near Jardine Juniper 1 1/2 miles west of junction of Cottonwood Canyon with Logan Canyon, Cache Co., June 10.

Dibotryon morbosum (Schw.) Theiss. & Syd.:

On Prunus virginiana var. demissa (Nutt.) Torr., Logan Canyon and Cowley Canyon south of forks of Logan River, Sept. 10; Sardine Pass, Sept. 4; Green Canyon northeast of Logan and Smithfield Canyon, Apr. 29; High Creek east of Cove, June 3; and Cottonwood Canyon branch of Logan Canyon, June 10, all in Cache Co.; Ogden Canyon east of Ogden and Snow Basin Recreation Area 8 miles southwest of Huntsville, Weber Co., Sept. 17; Emigration Canyon east of Salt Lake City, May 19, and 1 mile above Rotary Park in City Creek Canyon near Salt Lake City, June 17, Salt Lake Co.; and Mt. Timpanogos on road from Wildwood, Utah Co., Aug. 20. This disease is extremely common and widespread in the mountains of northeastern Utah. Extensive lesions as much as 3 feet long sometimes occur on the stems and even those as large as 4 inches in diameter may be extensively deformed by the disease, which is exceedingly destructive to thickets of chokecherries.

Discina ancilis (Pers. ex Fr.) Sacc.:

On wet ground near edge of melting snow, Tony Grove Lake, Bear River Range, Cache Co., June 24.

Erysiphe cichoracearum DC.:

On Artemisia dracunculoides Pursh, 1/2 mile north of Tony Grove Lake, Bear River Range, Cache Co. Coll. by Wm. E. Rader, 1940.

On Artemisia gnaphalodes Nutt., Island in Logan River near Logan, Cache Co. Coll. by Wm. E. Rader, Oct. 23, 1940.

On Aster coerulescens DC., 5 miles up Logan Canyon, Cache Co., Oct. 15; Emigration Canyon east of Salt Lake City, Salt Lake Co., Oct. 8.

On Cirsium pulchellum (Greene) Woot. & Standl., 3 miles north of Glendale, Kane Co., Oct. 28.

On Cynoglossum officinale L., Cache Junction, Cache Co., Oct. 22.

Erysiphe cichoracearum cont.

- On Grindelia squarrosa (Pursh) Dunal, Sardine Pass, 4 miles north of Mantua, Box Elder Co., Oct. 25; and Ogden Canyon east of Ogden, Weber Co., Sept. 17.
- On Helenium montanum Nutt., 4 miles west of Logan, Cache Co., Oct. 22.
- On Helianthus annuus L., Pleasant View, Weber Co., Sept. 19; and North Centerville, Sept. 7, and Bountiful, Oct. 6, Davis Co.
- On Mentha penardi (Briq.) Rydb., Spring Hollow and Guinavah Campsites in Logan Canyon, Cache Co., Oct. 15; and South Fork of Ogden River 5 miles east of Huntsville, Weber Co., Sept. 17.
- On Plantago major L., South Fork of Ogden River 5 miles east of Huntsville, Weber Co., Sept. 17; and Right Fork of Hobbie Creek east of Springville, Utah Co., Oct. 1.
- On Polemonium foliosissimum A. Gray, Logan Canyon, Cache Co. Undated collection.
- On Polemonium occidentale Greene, Boy's Camp on Right Fork of Logan River in Logan Canyon, Cache Co. Coll. by Dr. B. L. Richards, 1941.
- On Rudbeckia occidentalis Nutt., 15 miles up Logan Canyon, Cache Co., Sept. 10; and Snow Basin Recreation Area 8 miles southwest of Huntsville, Weber Co., Sept. 17.
- On Viguiera multiflora (Nutt.) Blake, Ogden Canyon east of Ogden, Weber Co., Sept. 17; and Parley's Canyon east of Salt Lake City, Salt Lake Co., Oct. 8.

Erysiphe polygoni DC.:

- On Aquilegia caerulea James, 5 miles up Logan Canyon, Cache Co., Oct. 15.
- On Clematis ligusticifolia Nutt., Ogden Canyon east of Ogden, Weber Co., Sept. 3.
- On Delphinium sp. (cult. perennial), Logan, Cache Co., July 19.
- On Polygonum aviculare L., Logan, Cache Co., Oct. 16.
- On Polygonum buxiforme Small, near Cache Junction, Cache Co., Oct. 22.

Gyromitra caroliniana Fr.:

On wet ground near edge of melting snow, Tony Grove Lake, Bear River Range, Cache Co., June 24.

Helotium virgultorum (Vahl ex Fr.) Karst.:

On piece of fallen branch of Populus tremuloides Michx., 1 1/2 miles west of Logan Canyon on Tony Grove Lake Road, Cache Co., June 24.

Hysteroglyphium bakeri Earle:

On decorticated standing trunk of Cercocarpus ledifolius Nutt., near Jardine Juniper on crest of ridge 1 1/2 miles west of junction of Cottonwood Canyon with Logan Canyon, Cache Co., June 10.

Lachnellula chrysophthalma (Pers.) Karst.:

On decorticated fallen trunk of Picea engelmanni Parry, Tony Grove Lake, Bear River Range, Cache Co., June 24.

Lasiobotrys symphoricarpi Syd.:

On leaves of Symphoricarpos vaccinioides Rydb., Spring Hollow in Logan Canyon, Cache Co. Coll. by Mr. Arthur H. Holmgren, July 15, 1944.

Lophodermium tumidum (Fr.) Rehm:

On old fallen leaves of Amelanchier florida Lindl., Emigration Canyon east of Salt Lake City, Salt Lake Co., Oct. 8.

Melanomma nitida Ell. & Ev.:

On dead stems of broken bush of Artemisia tridentata Nutt., Blacksmith Fork east of Hyrum, Cache Co., May 5.

Microsphaeraalni DC. ex Wint.:

On Alnus tenuifolia Nutt., associated sparingly with Phyllactinia corylea Pers. ex Karst., South Fork of Ogden River 5 1/2 miles east of Huntsville, Weber Co., Sept. 17; and Right Fork of

Microsphaeraalni cont.

Hobble Creek east of Springville, Utah Co., Oct. 1.

On Quercus gambelii Nutt., North Ogden, Weber Co., Sept. 14; and Right Fork of Hobble Creek east of Springville, Utah Co., Oct. 1.

Microsphaera diffusa Cke. & Pk.:

On Symphoricarpos vaccinioides Rydb., Ogden Canyon east of Ogden, Weber Co., Sept. 3.

Mycosphaerella spleniata (Cke. & Pk.) House:

On Quercus gambelii Nutt., Bullion Canyon 4 miles west of Marysvale, Piute Co., Oct. 27. Occurring abundantly on old fallen leaves.

Phyllactinia corylea Pers. ex Karst.:

On Acer negundo L., Logan Canyon, Cache Co. Coll. by Dr. B. L. Richards, 1941.

On Alnus tenuifolia Nutt., associated with Microsphaeraalni DC. ex Wint., South Fork of Ogden River 5 1/2 miles east of Huntsville, Weber Co., Sept. 17; and Right Fork of Hobble Creek east of Springville, Utah Co., Oct. 1.

On Cornus stolonifera Michx., 8 miles up Logan Canyon, Cache Co., Oct. 15; Beaver Creek 10 miles east of Huntsville, Weber Co., Oct. 1; and Bullion Canyon 4 miles west of Marysvale, Piute Co., Oct. 15.

On Populus angustifolia James, 3 miles north of Glendale, Kane Co., Oct. 28.

On Shepherdia argentea Nutt., 3 miles north of Marysvale, Piute Co., Oct. 27. Occurring in profusion.

Podosphaera oxyacanthae (DC.) DBy.:

On Prunus avium L., near Kaysville, Davis Co., July 22.

On Prunus cerasus L., near Kaysville, Davis Co., July 22.

On Duke cherry (Prunus avium X P. cerasus), North Ogden, Weber Co., Sept. 1.

Pseudopeziza medicaginis (Lib.) Sacc.:

On Medicago sativa L., La Verkin, Washington Co., Nov. 1.

Rhytisma salicinum Pers. ex Fr.:

On Salix caudatum (Nutt.) Heller, 6 miles up Logan Canyon, Cache Co., Sept. 10.

On Salix scouleriana Barratt, Cottonwood Canyon branch of Logan Canyon, Cache Co., Sept. 10; and Snow Basin Recreation Area 8 miles southwest of Huntsville, Weber Co., Sept. 17. Occurring abundantly in both cases.

Sphaeropsis sp.:

On dead twigs of witches' broom on Ephedra nevadensis S. Wats. caused by Peridermium ephedrae, Valley of Fire southwest of Overton, Clark Co., Nevada, Apr. 14.

Sphaerotheca humuli var. fuliginea (Schl.) Salm.:

On Agastache urticifolia (Benth.) O. Kuntze, Snow Basin Recreation Area 8 miles southwest of Huntsville, Weber Co., Sept. 17.

On Senecio hydrophilus Nutt., 2 miles north of Marysville, Piute Co., Oct. 27.

On Senecio integerrimus Nutt., Green Canyon northeast of Logan, Cache Co., May 30.

On Senecio serre Hook., Snow Basin Recreation Area 8 miles southwest of Huntsville, Weber Co., Sept. 17.

On Taraxacum vulgare (Lam.) Schr., Logan, Cache Co., Oct. 16; Ogden, Sept. 22; Snow Basin Recreation Area 8 miles southwest of Huntsville, Sept. 17; Weber Co.; and Mapleton, Utah Co., Sept. 30.

Syncarboella tumefaciens (Ell. & Harkn.) Theiss. & Syd.:

On Artemisia tridentata Nutt., 2 1/2 miles west of Pequop Summit, Elko Co., Nevada, Nov. 10, occurring on fusiform swellings on living and dead stems. Also in Blacksmith Fork east of Hyrum, Cache Co., May 5, occurring on dead stems and apparently killing them.

Teichospora mammoides Ell. & Ev.:

On dead stems of Opuntia acanthocarpa Engelm. & Bigel., between St. George and Veyo, Washington Co., Apr. 15. Associated with Phyllosticta cacti (Berk.) Archer.

Teichospora megastega Ell. & Ev.:

On Ephedra nevadensis S. Wats., 20 miles north of Beatty, Nye Co., and near Goldfield, Esmeralda Co., Nevada, Nov. 4, occurring commonly on dead stems. Also 8 1/2 miles west of Hurricane, Washington Co., Apr. 10. Apparently rare in Utah.

On Ephedra viridis Coville, 15 miles west of Santa Clara, Washington Co., Aug. 13. On dead stems.

Teichospora variabilis Ell. & Ev.:

On dead stems of Artemisia tridentata Nutt., near mouth of Green Canyon northeast of Logan, Cache Co., May 30.

Teichospora sp. (probably undescribed):

On Juniperus utahensis (Engelm.) Lemm., Arches National Monument, Grand Co., May 17. Frequent on decorticated dead twigs and branches of living trees.

Thyrostoma utahense (Sacc.) Petr.:

On dead twigs of Chrysothamnus sp., Cedar Canyon east of Cedar City, Iron Co., Apr. 9.

Uncinula salicis DC. ex Wint.:

On Populus tremuloides Michx., Ogden Canyon east of Ogden, Sept. 3; Snow Basin Recreation Area 8 miles southwest of Huntsville, Sept. 17, Weber Co.

On Salix glauca Anders., Spring Hollow Campsite in Loren Canyon, Cache Co., Oct. 15.

UREDINALES

Cronartium occidentale Hedgc., Bethel & Hunt, II, III:

On Ribes aureum Pursh, Ogden Canyon east of Ogden, Weber Co., Sept. 3; and 2 miles south of Panguitch, Garfield Co., Oct. 28.

Cumminsiiella sanguinea (Pk.) Arth., II, III:

On Mahonia repens (Lindl.) Don, 6 miles up Logan Canyon (Oct. 15) and near Logan (May 26), Cache Co.; Parley's Canyon and Millcreek Canyon (Oct. 8) and above Rotary Park in City Creek Canyon (June 17) near Salt Lake City, Salt Lake Co.; Bullion Canyon 4 miles west of Marysville, Piute Co., Oct. 27; Crandall Canyon above Castlegate, Carbon Co., collected by Arthur H. Holmgren, June 29, 1944.

Gymnosporangium betheli Kern, I, III:

On Crataegus rivularis Nutt., occurring more or less abundantly, and often in great profusion, in places at various points in northern Utah as follows:

Utah Co.:

Mt. Timpanogos along road from Wildwood, Aug. 20; Right Fork of Fobble Creek east of Springville, Oct. 1; and 2/5 mile and again 4 miles south of Thistle, Oct. 26.

Morgan Co.:

Between Devil's Gate and Gateway along the Weber River, Sept. 24.

Weber Co.:

South Fork of Ogden River 6 miles east of Huntsville, Sept. 17, and Eden, Sept. 24.

Box Elder Co.:

Box Elder Canyon between Brigham City and Mantua, Sept. 4.

Cache Co.:

Various points in Logan Canyon and along Right Fork of Logan River near junction with Cowley Canyon road, Sept. 10.

This rust frequently occurs more or less profusely on leaves and fruits, and trees are sometimes so severely infected that the foliage turns yellow in midsummer. Specimens collected late in the season were characterized by a very lacerate condition of

Gymnosporangium betheli cont.

the tubular aecia indicative of G. tubulatum, which has not been reported from Utah. Specimens from 10 collections made from mid-summer to fall were all considered to be the same rust by Dr. F. D. Kern, who concluded that G. betheli and G. tubulatum probably are not separate species and should be combined.

On Juniperus scopulorum Sarg., occurring more or less abundantly, and often in great profusion, at various points in northern Utah as follows:

Utah Co.:

2/5-3/5 mile south of Thistle, Apr. 18 and May 8; 4 miles southeast of Cotton on U. S. No. 90, May 17; and on flank of Mt. Timpanogos, May 13, occurring sparingly except near Thistle, where it was abundant on several young trees occurring in close proximity to hawthorns (Crataegus rivularis Nutt.) with fruits heavily infected on Oct. 26.

Salt Lake Co.:

Parley's Canyon east of Salt Lake City, occurring very sparingly but juniper very scarce in this canyon.

Weber Co.:

South Fork of Ogden River 6.5 miles east of Huntsville, May 21, occurring abundantly on limbs of a single large tree surrounded by Crataegus rivularis and infrequent on others but juniper very scarce.

Cache Co.:

Occurring in great profusion at various points for a distance of 15 miles up Logan Canyon, Apr. 28, May 3, May 27, June 10, and June 24; also abundant in Blacksmith Fork east of Hyrum, May 5, and in Smithfield Canyon east of Smithfield, Apr. 29 and May 30; also a trace in Green Canyon northeast of Logan, Apr. 29.

The telia of this and other species of Gymnosporangium were about all washed away by June 10 as a result of repeated heavy rains during May and the first few days of June. G. betheli is a rather variable rust, with a number of different manifestations on various parts of trees. The description stating that the telia occur in irregular, gall-like knots, usually breaking forth in succession along the branch, is woefully inadequate for this rust. It commonly produces innumerable small lesions on the twigs and small branches, long, more or less fusiform lesions on the limbs, and occasionally extensive lesions or series of lesions up to 3 or more feet long on the trunks of young trees,

Gymnosporangium betheli cont.

and has even been observed fruiting on trunks of trees as large as 5 inches in diameter. In some cases only very recent infections were found on twigs and small branches, in others only old lesions on limbs or trunks, while still others may have both. On one tree with numerous small twig infections in Logan Canyon even a few berries bore telia of this rust. Severity of infection was found to be closely correlated with the proximity of the alternate host, Crataegus rivularis. In the case of lesions on limbs the older central areas of bark become roughened and die in time and become blackish, but the rust usually continues to develop new telia from year to year from the callus formed along the living margins until the branch dies. In many cases, however, the rust kills attacked limbs quite extensively. Old dead lesions closely simulate black knot on chokecherry in general appearance. This rust often is associated with G. nelsoni Arth. and when but very recent infections of both occur together on the foliage sprays and smaller twigs, separation by visual methods presents difficulties. Lesions on older twigs and branches usually are characterized by a series of nodular excrescences closely aggregated into fusiform swellings, but these do not always develop, particularly with infections of very recent origin. New excrescences appear to develop rapidly following the formation of telia on those of the preceding year. The development of a new series of excrescences by this rust is not unlike that of new hypertrophied areas of black knot of chokecherry. This rust has never been observed to attack Utah juniper.

Gymnosporangium inconspicuum Kern, III:

- On Juniperus utahensis (Engelm.) Lemm., occurring abundantly on foliage sprays on one large tree bearing numerous globose, woody galls of G. nelsoni Arth., 2 miles north of Pintura, Washington Co., Apr. 9.

Gymnosporangium juvenescens Kern, III:

- On Juniperus scopulorum Sarg., causing the development of more or less compact witches'-brooms with the foliage usually, but not always, reverting to the subulate, juvenile type. Brooms caused by this rust were found occurring at a number of points up Logan Canyon in Cache Co., namely Source of Logan City Water Supply (Apr. 28), Preston Valley Trail 9 miles up the Canyon (May 3), above Guinavah Campsite (May 27), Chokecherry Camp Ground, Cottonwood Canyon branch of Logan Canyon, and near the Jardine Juniper near the crest of a rocky ridge 1 1/2 miles west of the junction of Cottonwood Canyon with Logan Canyon (June 10). Brooms from nearly

Gymnosporangium juvenescens cont.

all points showed good development of telia except for one collection made as late as June 10, which showed the scars where the telial cushions had been produced but the telia had been completely washed away by the abnormally heavy rainfall during May and early June. Other brooms collected near the Jardine Juniper on this date, however, still showed good development of telia in the compact interiors but the spores had germinated. Several brooms with telia just beginning to develop well were also found on trees at a fairly high elevation in Smithfield Canyon, Cache Co., on April 29, when snow was still present nearby. A single broom with good development of telia also was found on a young planted tree in the city park at Price, Carbon Co., May 8. Two brooms not yet fruiting were found on one large tree at a fairly high elevation near Long Valley Junction on the Dixie National Forest, Kane Co., Apr. 17, telial production being retarded both by earliness of season and high altitude.

As a rule but one or two of these rust brooms are found on single trees but occasionally several trees, each with from one to a few brooms, may occur fairly close together. Seven trees with rust brooms were found in the vicinity of the Jardine Juniper and one of these trees had 6 living brooms and 2 dead ones. Some of the brooms on trees in this vicinity were of considerable age. The Jardine Juniper, now nearly dead, has a diameter of 8 feet and has been estimated to be from 3200-3500 years old and is claimed to be the oldest tree of its kind. This broom-forming rust apparently never occurs on J. utahensis, which is frequently associated with J. scopulorum. One broom with good telial development on the foliage was found on a tree with numerous lesions of G. betheli and this rust was even fruiting on the branch from which the witches'-broom had developed.

Gymnosporangium kernianum Bethel, III:

On Juniperus utahensis (Engelm.) Lemm., causing compact witches'-brooms with a slight reduction in leaf size but no reversion of the foliage to the subulate, juvenile type. Brooms with good telia developed on the foliage were observed near the west entrance to Zion National Park, Washington Co., at the east entrance on the Washington-Kane Co. line, and at points 8 and 10 miles north of Kanab, Kane Co., Apr. 16 and 17. Bethel (Mycologia 3: 157. 1911), in his description of these brooms, gives the size as ranging from 2 inches to 2 feet in diameter. However, the brooms seen north of Kanab were of giant size. One tree about 2 ft. in diameter had an old broom fully 8 ft. in diameter formed in the upper part of one of two upright main limbs, the other having

Gymnosporangium kernianum cont.

been off. Two other trees, equally large, each had an old broom, respectively 8 and 10 ft. in diameter, formed on the lower limbs. In small brooms the branches are reduced to a compact, rounded mass so dense that the interior twigs die and remain as a mass of litter persisting for years. In these giant brooms, however, they had grown so long that the main limbs had become bare and the compact masses of smaller brooms were borne on the terminal portions of the various subdivisions, the whole united into a compound witches'-broom. When the great age and slow rate of growth of these trees are considered, such giant witches'-brooms doubtless will prove to be at least a hundred or more years old.

Smaller brooms with good telial development were collected subsequently at a point 10.7 miles south of Kane Spring Turnout, May 12, Allen Canyon Road 14 miles west of Blanding, at the eastern boundary of the La Sal National Forest 17.6 miles west of Blanding, May 13, and 1/2 mile east of La Sal (7,000 ft. elev.), San Juan Co., May 16. In the latter case 2 compact brooms with good telia of this rust occurred on a tree with several open-type brooms caused by G. speciosum Pk.; in fact the latter rust was fruiting on the stems of both the G. kernianum brooms. Five trees, each with one or more brooms, some of which exhibited good telial production, also were found on scattered trees in one area of the Arches National Monument, Grand Co., May 17. This rust apparently does not occur on J. scopulorum, the rusts causing the brooms on these respective trees being considered distinct species.

Gymnosporangium libocedri (P. Henn.) Kern, III:

On Libocedrus decurrens Torr., occurring rather frequently on a number of trees a few miles northeast of Lake Tahoe, Lyon Co., Nevada, Nov. 8, as evidenced by the witches'-broom formations on the branches. This rust does not appear to have been reported as occurring in this State.

Gymnosporangium nelsoni Arth., III:

On Amelanchier florida Lindl., at various points in Logan Canyon (Aug. 6, Sept. 10 and Oct. 15) and in Cowley Canyon south of forks of Logan River (Sept. 10), Cache Co.; Ogden Canyon east of Ogden, Weber Co., Sept. 3; Mt. Timpanogos along road from Wildwood, Utah Co.; Aug. 20, and on top of a ridge 5 1/2 miles west of Panguitch, Garfield Co., Oct. 27. This rust is extremely common and widespread on foliage and fruit.

Gymnosporangium nelsoni cont.

On Juniperus scopulorum Sarg., as follows:

Kane Co.:

5 1/2 miles northeast of Glendale, Apr. 17.

Garfield Co.:

1.7 miles south of Hatch, Apr. 17.

Carbon Co.:

On young trees planted in city park at Price, May 8, and between Royal and Soldier Summit, May 17.

Utah Co.:

4 miles south of Cotton on U. S. Highway No. 90, May 17, and on flank of Mt. Timpanogos along road from Wildwood, May 18.

Weber Co.:

South Fork of Ogden River 6-7 miles east of Huntsville, May 21.

Cache Co.:

Various points up Logan Canyon, Apr. 28, May 3 and June 10; junction of Right Fork of Logan River with Cowley Canyon Road, May 3 and May 27; Green Canyon northeast of Logan, Apr. 29 and May 30; Smithfield Canyon east of Smithfield, Apr. 29; and High Creek 4 1/2 miles east of Cove, June 3. As a general rule, this rust does not appear to occur anywhere near as abundantly on this host as it does on J. utahensis and the galls are much smaller and more cerebroid. In the northern part of Utah this rust frequently occurs in association with G. betheli.

Nevada:

A collection of this rust was made for the writer by Dr. Bassett Maguire and Mr. Arthur H. Holmgren at Cherry Creek, Quinn Canyon Range, Nye Co., June 8. Not recorded in Arthur's Rust Manual as occurring on juniper in this State.

On Juniperus utahensis (Engelm.) Lemn., occurring abundantly, and often in great profusion, throughout much of southwestern and southeastern Utah, where this host is extremely common. Collections were made as follows:

Washington Co.:

2 miles north of Pintura, Anderson's Ranch 3 miles north of Toquerville, 1.4-1.6 miles northeast of Leeds, Silver Reef Mine Road 1.5 mile north of Leeds, 5, 10 and 15 miles northwest of Santa Clara and continuing along U. S. No. 91 Highway

Gymnosporangium nelsoni cont.

to a point 8 miles north of the Utah-Arizona State line, where the host stopped; also half-way between St. George and Veyo and on hillside southwest of Veyo, and starting again between Rockville and Springdale and occurring abundantly through Zion National Park to the east boundary at the Washington-Kane Co. line, Apr. 9-16.

Kane Co.:

Occurring more or less abundantly, and often in great profusion, throughout the western part, collections being made at intervals from the western boundary east to Mt. Carmel Junction and thence southward to the Utah-Arizona State line 3 1/2 miles south of Kanab, and northward from Mt. Carmel Junction to a point 5 1/2 miles northeast of Glendale (Apr. 16-17), where, at the higher elevation, J. utahensis was replaced by J. scopulorum.

Cache Co.:

Green Canyon northeast of Logan, Apr. 29.

Carbon Co.:

10-11 miles southeast of Price, May 9.

Emery Co.:

25 miles southeast of Price, May 9.

Grand Co.:

13 1/2 miles northwest of Moab, May 9, from Castleton to a point 5 miles northwest, May 11, and at Arches National Monument, May 17.

San Juan Co.:

Of widespread occurrence throughout much of this county wherever Utah juniper occurred and was examined, collections being made at points 8.2 and 12.8 miles southeast of Moab, 9.8 and 10.7 miles south of Kane Spring Turnout, 11 and 9 miles north and 2 1/2 miles east of Monticello, at intervals along the road to Blanding 22 miles south of Monticello, at intervals to a point at 7000 ft. elev. west of Blanding, where the upper limit of Utah juniper is reached, and southward from Blanding to a point 11 miles north of Bluff, where the country with scattered Utah juniper drops off to desert; also at the upper limit of this tree 1/2 mile east of La Sal, May 12-17.

In some localities in Washington and Kane Counties in southwestern Utah, and in Grand and San Juan Counties in southeastern Utah this rust was so abundant that galls occurred by the hundreds on

Gymnosporangium nelsoni cont.

individual trees. These mostly ranged in size from minute ones just large enough to develop one or two telial horns to globose woody galls about an inch in size. Numerous galls up to 2 and even 3 1/2 inches in diameter were seen on the larger branches, and even galls up to 4 1/2 inches across were seen on the sides of large limbs or trunks. Arthur's Rust Manual gives the size as ranging up to 5 cm. Galls developing on twigs invariably are small since these parts are soon killed by the rust. Galls on the larger branches or trunks often attain considerable size and age. Telia were well developed during the first half of April, when the collections in southwestern Utah were made, except at elevations much above 5,000 ft., where telial production was greatly delayed by cold and was just beginning. As a general rule, the small galls develop telia earlier than the large ones. In a number of localities where infections had not developed within the last few years the galls were mostly dead.

Nevada:

A fine collection of this rust was made for the writer by Dr. Bassett Maguire and Mr. Arthur H. Holmgren at Burnt Creek Canyon, Quinn Canyon Range, Nye Co. Not recorded in Arthur's Rust Manual as occurring on juniper in this State.

Gymnosporangium speciosum Pk., III:

On Juniperus utahensis (Engelm.) Lamm., occurring in great profusion on the fusiform swellings of branches of a series of open-type witches'-brooms involving most of the living branches on a single tree 1/2 mile east of La Sal, San Juan Co., May 16. The orange-yellow telia developed as frilly outgrowths extruded in more or less linear arrangement through the bark, which was abnormally thickened and deeply fissured. They occurred most abundantly on the twigs and smaller branches of the brooms but were observed on one old branch 2 1/2 inches in diameter. Telial development of this rust even occurred on the larger branches of the two compact witches'-brooms which first attracted attention to this tree. It was abundant on all of the open-type brooms except two which were largely dead from the rust. While this rust has been reported as occurring on fusiform swellings, no mention has been made that it stimulates the development of witches'-brooms.

Melampsora albertensis Arth., II:

On Populus tremuloides Michx., 6 miles up Logan Canyon, Cache Co., Sept. 10; Ogden Canyon east of Ogden, Weber Co., Sept. 3; Mt.

Melampsora albertensis cont.

Timpanogos near Wildwood, Utah Co., Aug. 20.

Melampsora ribesii-purpureae Kleb., II:

On Salix amygdaloides Anders., 1 1/2 miles east of forks of Logan River, Logan Canyon, Cache Co., Sept. 10.

On Salix caudata (Nutt.) Heller, 6 miles up Logan Canyon, Cache Co., Sept. 10.

On Salix lutea Nutt., near Fruitland, Duchesne Co. Coll. by M. B. Linford, Aug. 7, 1927.

On Salix scouleriana Barratt, Box Elder Canyon, between Brigham City and Mantua, Box Elder Co., Sept. 4; Ogden Canyon east of Ogden, Weber Co., Sept. 3; near head of American Fork Canyon, Utah Co., Aug. 20.

Melampsorella cerastii (Pers.) Schroet., I:

On Abies concolor Lindl. & Gord., near head of American Fork Canyon, Utah Co., Aug. 20. Forming witches'-brooms with abundant aecia on 4 trees.

Peridermium ephedrae Cke., I:

On Ephedra nevadensis S. Wats., Valley of Fire southwest of Overton, Clark Co., Nevada, Apr. 14. A single witches'-broom was found in which all the aecia but those on a few twigs had weathered away, leaving lenticular ruptures in the cortex of the twigs, through which aecia had developed. New to the State Flora.

Phragmidium montivagum Arth., II, III:

On Rosa woodsii Lindl., occurring commonly at various points up Logan Canyon, Cache Co., Aug. 6 and Sept. 10; also at Ogden, Weber Co., Sept. 18. Not reported previously on this host in Utah.

Phragmidium occidentale Arth., II, III:

On Rubus parviflorus Nutt., Ogden Canyon east of Ogden, Weber Co., Sept. 3; City Creek Canyon near Salt Lake City, Salt Lake Co., Aug. 13.

Phragmidium rubi-idaei (DC.) Karst., III:

On Rubus idaeus var. aculeatissimus Regel & Tiling, 14 miles up Logan Canyon, Cache Co., Sept. 10.

Puccinia absinthii (Hodw. f.) DC., II, III:

On Artemisia gnaphalodes Nutt., Island in Logan River, near Logan, Cache Co. Coll. by B. L. Richards, Oct. 4, 1941. Not reported previously on this host in Utah.

On Artemisia tridentata Nutt., 7 miles up Logan Canyon, Cache Co., Oct. 15; Hobble Creek Canyon east of Springville, Utah Co., Oct. 1; 5 1/2 miles west of Panguitch, Garfield Co., Oct. 27; also near Steamboat Hot Springs, Storey Co., and Pequop Summit, Elko Co., Nevada, Nov. 8 and 10.

On Artemisia tridentata var. rothrockii Hall & Clements, near head of Beaver Creek 12 miles northeast of Huntsville, Weber Co., Sept. 24.

Puccinia aemulans Syd., II, III:

On Viguiera multiflora (Nutt.) Blake, 14 miles up Logan Canyon, Cache Co., Sept. 10; Ogden Canyon east of Ogden, Weber Co., Sept. 3; Parley's Canyon east of Salt Lake City, Salt Lake Co., Oct. 8.

Puccinia aristidae Tracy, II, III:

On Distichlis stricta (Torr.) Rydb., 4 miles west of Smithfield, Cache Co., Oct. 26; Redmond and Salina, Sevier Co., Oct. 26; also 2 miles west of Fallon, Churchill Co., and at Reno Hot Springs, Washoe Co., Nevada, Nov. 5 and 8.

Puccinia atrofusca (Dudl. & Thomp.) Holw., II, III:

On Carex geyeri Boott, 6 miles up Logan Canyon, Cache Co., Oct. 15. Not reported previously on this host in Utah.

Puccinia balsamorhizae Pk., II, III:

On Balsamorhiza sagittata (Pursh) Nutt., 6 miles up Logan Canyon, Cache Co., Oct. 15.

Puccinia balsamorhizae cont.

On Wyethia amplexicaulis Nutt., Gardine Pass., 4 miles north of Mantua, Box Elder Co., Oct. 25.

Puccinia bardanae (Wallr.) Cda., II, III:

On Arctium minus Schk., 5 miles up Logan Canyon, Cache Co., Oct. 15; Box Elder Canyon, between Brigham City and Mantua, Box Elder Co., Sept. 4; Ogden Canyon east of Ogden, Weber Co., Sept. 3; South Fork of Ogden River 5 1/2 miles east of Huntsville, Weber Co., Sept. 17; City Creek Canyon near Salt Lake City, Salt Lake Co., Aug. 13. A large collection of this rust, made by Dr. B. L. Richards at Nikley, Cache Co., Sept. 12, 1941, was found later in working over some unidentified collections. This rust, which has not been reported previously as occurring in Utah, appears to be well established in the northeastern part. Since Arthur's Rust Manual gives North Dakota as the western limit of distribution, these collections extend the range more than 500 miles southwestward.

Puccinia calochorti Pk., I, III:

On Calochortus nuttallii T. & G., near mouth of Green Canyon northeast of Logan, June 2; Logan, June 28, Cache Co.

Puccinia caricis urticata (Kern) Arth., II:

On Carex nebraskensis Dewey, near Cache Junction and at State Fish Hatchery west of Logan, Cache Co., Oct. 22; north of Glendale, Kane Co., Oct. 28.

On Carex sp., State Fish Hatchery west of Logan, Cache Co., Oct. 22.

Puccinia cirsi Lasch, II, III:

On Cirsium arizonicum (A. Gray) Petrak, Zion Canyon, Zion National Park, near Springdale, Washington Co., Oct. 29. Not reported previously on this host in Utah.

On Cirsium undulatum (Nutt.) Spreng., Ogden, Weber Co., Sept. 18.

Puccinia cnici Mart., II, III:

On Cirsium lanceolatum (L.) Hill, 14 miles up Logan Canyon, Cache

Puccinia cnici cont.

Co., Sept. 10; South Fork of Ogden River 6 miles east of Huntsville, Weber Co., Sept. 17; Right Fork of Hobbie Creek east of Springville, Utah Co., Oct. 1.

Puccinia conspiciua (Arth.) Mains, I:

On Helenium hoopsei A. Gray, Schuman's Gulch, La Sal Mts., Grand Co., at 9000 ft. elev. Coll. by Dr. Bassett Maguire, July 21, 1933. New to the Utah Flora.

Puccinia evadens Hark., II:

On Baccharis emoryi A. Gray, Zion Canyon, Zion National Park, near Springdale, Oct. 29, and in 2 localities at La Verkin, Washington Co., Nov. 1. Causing fusiform swellings and witches'-brooms on stems, the systemic, caulicolous habit of the uredinial stage being unusual. When in this county again on Apr. 14 old brooms and fusiform swellings were observed occurring abundantly at one locality east of Rockdale and at Zion Lodge in Zion National Park, the latter about a mile from the place where the rust was collected earlier. New to the Utah Flora.

Puccinia globosipes Pk., II, III:

On Lycium andersonii A. Gray, 5 miles west of Fallon, Churchill Co., Nov. 5, and in Valley of Fire southwest of Overton, Clark Co., Apr. 14, Nevada; also northeast of La Verkin and 2.6 miles north of Utah-Arizona State line on U.S. Highway No. 91, Washington Co., Apr. 10 and 15.

On Lycium torreyi A. Gray, Overton, Moapa Valley, Clark Co., Nevada, Apr. 13.

Puccinia grindeliae Pk., III:

On Chrysothamnus nauseosus subsp. graveolens (Nutt.) H. & C., Zion Canyon, Zion National Park, near Springdale, Washington Co., Oct. 29. Abundant.

On Gutierrezia sarothrae (Pursh) Britt. & Rusby, same locality and date.

Puccinia grindeliae cont.

On Actinea leptoclada ivesiana (Greene) Macbr., Comb Wash Ridge between Bluff and Mexican Hat, San Juan Co. Coll. by Arthur H. Holmgren, May 20, 1944; also 9 miles north of Monticello, San Juan Co., May 12. In the latter collection the rust was confined to old dead overwintered basal leaves. While infections had developed on the young leaves, it was too early for sporulation of the rust on these.

Puccinia harknessii Vize, II, III:

On Lygodesmia spinosa Nutt., 1 1/2 miles north of the University of Nevada, Reno, Washoe Co., Nevada, Nov. 7.

On Stephanomeria tenuifolia (Torr.) H. M. Hall, Zion Canyon, Zion National Park, near Springdale, Washington Co., Oct. 26.

Puccinia helianthi Schw., II, III:

On Helianthus annuus L., Toquerville, Washington Co., Nov. 2.

Puccinia heucherae (Schw.) Diet., III:

On Mitella stauropetala Piper, Ogden Canyon east of Ogden, Weber Co., Sept. 3. Not reported previously on this host in Utah.

Puccinia hieracii (Schum.) Mart., II, III:

On Agoseris (an abomict), occurring on leaves, stems and flower-heads, Logan, Cache Co., June 28.

On Crepis occidentalis Nutt., occurring on leaves, stems and flower-heads. Associated with the preceding.

On Taraxacum vulgaris (Lam.) Schr., 5 miles up Logan Canyon, Cache Co., Oct. 15; Ogden Canyon east of Ogden and Snow Basin Recreation Area 8 miles southwest of Huntsville, Weber Co., Sept. 3 and 7; Parley's Canyon east of Salt Lake City, Salt Lake Co., Oct. 8; La Verkin, Washington Co., Nov. 1.

Puccinia holboellii (Horenem.) Rostr., C, III:

On Arabis holboellii Horenem., junction of Lake Blanch Road in Big

Puccinia holboellii cont.

Cottonwood Canyon near Holladay, May 20, and City Creek Canyon near Salt Lake City, May 21, Salt Lake Co.; Cottonwood Canyon branch of Logan Canyon and Guinavah Campsite in Logan Canyon, June 10 and May 27, Cache Co.

On Arabis holboellii var. retrofracta (Grah.) Rydb., on mountain bench and ravine east of Logan, Cache Co., May 26.

On Arabis sp., La Sal National Forest 27 miles west of Blanding, San Juan Co., May 15.

Puccinia iridis (DC) Wallr., II, III:

On Iris missouriensis Nutt., 4 miles north of Circleville, Piute Co., Oct. 27. New to the Utah Flora.

Puccinia jonesii typica Arth., G, I, III:

On Lomatium dissectum (Nutt.) M. & C. var. multifidum (Nutt.) M. & C., Big Cottonwood, Millcreek and City Creek Canyons near Salt Lake City, Salt Lake Co., May 20 and 21; Logan Canyon, Cache Co., May 27.

On Lomatium simplex (Nutt.) Macbr., Logan, Cache Co., May 9 and June 28.

Puccinia malvacearum Bert., III:

On Althaea rosea (L.) Cav., South Ogden, Weber Co., June 18; Logan, Cache Co., June 30.

On Malva rotundifolia L., South Fork of Ogden River 5 miles east of Huntsville and at Pleasant View, Weber Co., Sept. 17 and 19; Right Fork of Hobbie Creek east of Springville, Utah Co., Oct. 1; Leeds and Santa Clara, Washington Co., Oct. 30, also at Reno, Washoe Co., Nevada, Nov. 7. A very common rust on this host.

Puccinia menthae Pers., III:

On Mentha penardi (Briq.) Rydb., Right Fork of Hobbie Creek east of Springville, Utah Co., Oct. 1.

Puccinia millefolii Fekl., III:

On Achillea lanulosa Nutt., 14 miles up Logan Canyon, Cache Co., Sept. 10. Not previously reported on Achillea in Utah.

Puccinia monoica (Pk.) Arth., O, I:

On Arabis microphylla Nutt., on mountain bench east of Logan, Cache Co., May 26. A new host record for this rust.

On Arabis perennans S. Wats., 9 miles north of Monticello, San Juan Co., May 12. A new host record for this rust.

Puccinia pattersoniana Arth., O, I:

On Brodiaea douglasii S. Wats., mouth of Big Cottonwood Canyon near Holladay, Salt Lake Co., May 20.

Puccinia pimoinellae (Str.) Mart., O, I, II, III:

On Osmorrhiza occidentalis Nutt., Logan Canyon, Cache Co., Aug. 6, Sept. 10 and May 27; Ogden Canyon east of Ogden and Snow Basin Recreation Area 8 miles southwest of Huntsville, Weber Co., Sept. 3 and 17; Mt. Timpanogos near Wildwood and Right Fork of Hobbie Creek east of Springville, Utah Co., Aug. 20 and Oct. 1. A very common rust.

Puccinia plumbaria Pk., O, I, III:

On Phlox gracilis (Dougl.) Greene (= Microsteris micrantha (Kellogg) Greene), along edge of Ft. Douglas Reservation, Salt Lake City, Salt Lake Co., May 19; on mountain bench east of Logan, May 26, and near mouth of Green Canyon northeast of Logan, June 2, Cache Co.

On Phlox longifolia Nutt., Salt Lake City, May 7 and 19, on bench near Millcreek Canyon and near mouth of Big Cottonwood Canyon near Salt Lake City, May 20, Salt Lake Co. A very common rust, systemic in plants and causing enlargement and thickening of leaves and aborting plants so that they rarely bloom.

Puccinia polygoni-amphibii Pers., II, III:

On Polygonum natans var. hartwrightii (Gray) Sanford, 4 miles west

Puccinia polygoni-amphibii cont.

of Logan, Cache Co., Oct. 22.

Puccinia rubigo-vera agropyri (Erikss.) Arth., I, II, III:

On Agropyron subsecundum Lk., Mt. Timpanogos near Wildwood, Utah Co., Aug. 20.

On Clematis ligusticifolia Nutt., Ogden, Weber Co., Sept. 18.

On Elymus condensatus Presl., 6 miles up Logan Canyon, Cache Co., Sept. 10.

On Elymus glaucus Buckl., Ogden Canyon east of Ogden, Weber Co., Sept. 3.

Puccinia rubigo-vera apocrypta (Ell. & Tr.) Arth., O, I:

On Hydrophyllum capitatum Dougl., Card Ranger Station in Logan Canyon, June 10, Smithfield Canyon, May 10, and road to Tony Grove Lake from Logan Canyon, June 24, Cache Co.; above Rotary Park in City Creek Canyon near Salt Lake City, Salt Lake Co., June 17.

Puccinia splendens Vize, II, III:

On Hymenoclea salsola Torr. & Gray, 4 miles west of Hurricane, Washington Co., Oct. 31, occurring abundantly and causing fusiform swellings on the older stems. Also collected during the first half of April, 1945, 8 1/2 miles west of Hurricane, between Hurricane and La Verkin, and northeast of La Verkin, Washington Co., Utah, and near Bunkerville and in the Valley of Fire southwest of Overton, Clark Co., Nevada, occurring in great abundance in the last locality. This rust does not appear to have been recorded previously from Nevada and was recorded from Utah only from a single collection made in Washington Co. (Garrett, The Uredinales or Rusts of Utah, Bull. Univ. Utah 28 (7): 44.1937, and in Arthur's Rust Manual) as on H. monogyra Torr. & Gray, a species not recognized as occurring in this State. The host for this rust collection has recently been determined as H. fasciculata A.Nels. by S. F. Blake, who states that this doubtfully distinct species is very close to H. salsola and that many botanists consider them identical.

Puccinia subcircinata Ell. & Ev., III:

On Senecio integerrimus Nutt., Parley's Canyon east of Salt Lake City,

Puccinia subcircinata cont.

Salt Lake Co., May 17; Green Canyon northeast of Logan, May 30, and at the Jardine Juniper near crest of rocky ridge 1 1/2 miles west of junction of Cottonwood and Logan Canyons, June 10, Cache Co.

Puccinia thlaspeos Schub., III:

On Thlaspi glaucum A. Nels., 5 miles up Logan Canyon, Cache Co. Coll. by Mr. Arthur H. Holmgren, June 2, 1944.

Puccinia vagans epilobii-tetragoni DC., III:

On Epilobium paniculatum Nutt., Right Fork of Hobble Creek east of Springville, Utah Co., Oct. 1. Occurring abundantly.

Puccinia violae (Schum.) Arth., II, III:

On Viola adunca J. E. Smith, Right Fork of Hobble Creek east of Springville, Utah Co., Oct. 1.

On Viola nephrophylla Greene, occurring near the preceding. Not reported previously on this host in Utah.

Pucciniastrum pustulatum (Pers.) Diet., II:

On Epilobium adenocaulon Haussk., State Fish Hatchery west of Logan, Cache Co., Oct. 22; South Fork of Ogden River 5 miles east of Huntsville, Weber Co., Sept. 24; Right Fork of Hobble Creek east of Springville, Utah Co., Oct. 1.

Uromyces fabae (Pers.) DBy., III:

On Lathyrus utahensis Jones, 6 miles up Logan Canyon, Cache Co., Oct. 15; Emigration Canyon east of Salt Lake City, Salt Lake Co., Oct. 8.

Uromyces glycyrrhizae (Rab.) Magn., II, III:

On Glycyrrhiza lepidota Nutt., near Cache Junction, Cache Co., Oct. 22.

Uromyces intricatus Cke., II, III:

On Eriogonum loganum A. Nels., Island in Logan River near Logan, Cache Co. Coll. by B. L. Richards, Oct. 4, 1941. Not reported previously on this host in Utah.

Uromyces junci (Desm.) L. Tul., II, III:

On Juncus balticus Willd., State Fish Hatchery west of Logan, Cache Co., Oct. 22. Occurring in great profusion. New to the Utah Flora.

Uromyces striatus medicaginis (Pass.) Arth., II, III:

On Medicago lupulina L., La Verkin, Washington Co., Nov. 1. Not previously reported on this host in Utah.

On Medicago sativa L., La Verkin, Washington Co., Nov. 1.

Uromyces trifolii fallens (Desm.) Arth., II, III:

On Trifolium pretense L., Right Fork of Hobble Creek east of Springville, Utah Co., Oct. 17; La Verkin and Toquerville, Washington Co., Nov. 1 and 2.

USTILAGINALES

Sphacelotheca cruenta (Kühn) Potter:

On Sorghum halepense (L.) Pers. (occurring abundantly in orchards). Leeds and Santa Clara, Washington Co., Oct. 30 and 31. New record for the Utah Flora.

Sphacelotheca sorghi (Ik.) Clint.:

On Sorghum vulgare Pers., near Springdale, Washington Co. Oct. 29. Occasional in inflorescences of plants in a 1-acre planting.

Ustilago bromivora (Tul.) Fisch. de Waldh.:

On Bromus rubens L., occurring in association with Bromus tectorum L. attacked by the same smut, Leeds, Washington Co., Oct. 30.

On Bromus tectorum L., 7 miles up Logan Canyon, Cache Co., Oct. 1;

Ustilago bromivora cont.

Bountiful, Davis Co., Oct. 6; Mapleton, Columbia Steel Plant south of Provo, and Hobble Creek east of Springville, Utah Co., Sept. 30 and 31 and Oct. 2; Zion Canyon in Zion National Park, Washington Co., Oct. 29. This smut is extremely common and widespread in Utah, frequently infecting high percentages of the plants in areas. Zundel (Mycologia 13: 180. 1921) recorded numerous localities and the percentage of infection in the northeastern part of Utah.

Ustilago hypodytes (Schlecht.) Fr.:

On Distichlis stricta (Torr.) Rydb., at Redmond and Salina, Sevier Co., Oct. 26; also north of Beatty, Nye Co., Nevada, Nov. 4.

On Hilaria jamesii (Torr.) Rydb., La Sal Junction 31 miles north of Monticello, San Juan Co. Coll. by Mr. Arthur H. Holmgren, June 15.

BASIDIOMYCETES

Agaricus arvensis Fr.:

On thick litter of dry duff under Douglas fir (Pseudotsuga taxifolia) on dry mountainside above Pine View Dam in Ogden Canyon, Weber Co., Sept. 3.

Coprinus atramentarius Bull. ex Fr.:

On root of stump of Populus deltoides Bartr., North Logan, Cache Co., May 30.

Crucibulum vulgare Tul.:

On slash of Juniperus scopulorum Sarg., Chokecherry Picnic Ground in Logan Canyon and 1 1/2 miles west of Logan Canyon on Tony Grove Lake Road, Cache Co., June 10 and 24.

Fomes fraxinophilus (Pk.) Sacc. forma ellisianus (F. W. Anderson) Baxter:

On Shepherdia argentea Nutt., Redmond, Sevier Co., Oct. 26; Marysvale Canyon 3 miles north of Marysvale, Bullion Canyon at points 2 and 3 miles west of Marysvale, and 3 and 5 miles northeast of Circleville, Piute Co., Oct. 27 and Apr. 18; at points 2 and 7 miles

Fomes fraxinophilus cont.

south of Panguitch, Garfield Co., Oct. 22 and Apr. 18. Also along the Truckee River at Ramsey Station on the Southern Pacific R. R. 23 miles west of Reno, Storey Co., Nevada, Nov. 9. This fungus occurred in great abundance in local thickets of the host at these points, causing a light brown heart rot and premature death of living stems. It appears to have been reported previously only from Montana, Saskatchewan, South Dakota, Colorado, and New Mexico. Its occurrence in southwestern Utah and western Nevada extends the host range considerably.

Fomes igniarius (L. ex Fr.) Kickx:

On Populus tremuloides Michx., City Creek Canyon near Salt Lake City, Aug. 13; near head of American Fork Canyon and below aspen grove on Mt. Timpanogos, Utah Co., Aug. 20 and May 18; and 15 miles up Logan Canyon and between Logan Canyon and Tony Grove Lake, Cache Co., June 24.

Guepinopsis albina (Tr. & Earle) Brasfield:

On decorticated limb of fallen white fir (Abies concolor (Gord. & Glend.) Hoopes, Mt. Timpanogos, Utah Co., May 18.

On decorticated fallen sapling of Abies lasiocarpa (Hook.) Nutt., Tony Grove Lake, Bear River Range, Cache Co., June 24.

On decorticated trunks and limbs of Juniperus scopulorum Sarg., near Jardine Juniper on crest of ridge 1 1/2 miles west of junction of Cottonwood Canyon with Logan Canyon, Cache Co., June 10.

On decorticated limbs of Pseudotsuga taxifolia (Poir.) Britt., same date and locality as the preceding.

Paneolus campanulatus (L.) Quél.:

On stony ground above forks of Logan River in Logan Canyon, Cache Co., June 10.

Pholiota adiposa (Fr.) Quél.:

On Populus deltoides Bartr., fruiting on loose bark over dead area about 12 ft. high on large living tree, Panguitch, Garfield Co., Oct. 27.

Pleurotus ostreatus Jacq. ex Fr.:

On stump of boxelder (Acer negundo L.), Cove, Cache Co., June 3.

On stump and log of narrowleaf cottonwood (Populus angustifolia James), 2/5 mile south of Thistle, Utah Co., May 8; High Creek east of Cove, Cache Co., June 3.

On stumps of eastern cottonwood (Populus deltoides Bartr.), North Logan and Cove, Cache Co., May 30 and June 3. Fruiting abundantly in large masses.

On stumps of Lombardy poplar (Populus nigra var. italica Muensch.), North Logan and Cove, Cache Co., May 30 and June 3.

Polyporus abietinus Dicks. ex Fr.:

On fallen trunks of Abies concolor (Gord. & Glend.) Hoopes, Big Tree Camp Ground on flank of Mt. Timpanogos, Utah Co., May 18; 1 mile above Rotary Park in City Creek Canyon near Salt Lake City, Salt Lake Co., June 17.

On fallen trunk of Abies lasiocarpa (Hook.) Nutt., 1 1/2 miles west of Logan Canyon on Tony Grove Lake Road, Cache Co., June 24.

On fallen trunk of Pseudotsuga taxifolia (Poir.) Britt., crest of ridge 1 1/2 miles west of junction of Cottonwood and Logan Canyons, Cache Co., June 10.

Polyporus adustus Willd. ex Fr.:

On charred stump of Populus fremonti S. Wats., 2 1/2 miles southeast of Price, Carbon Co., May 8.

Polyporus alboluteus Ell. & Ev.:

On decorticated fallen trunks of Picea engelmanni Parry, Tony Grove Lake, Bear River Range, Cache Co., June 24.

Polyporus hirsutus Wulf. ex Fr.:

On sweet cherry (Prunus avium L.) as wound parasite on limb of living tree, North Ogden, Weber Co., Sept. 14. This fungus is considered by Dr. B. L. Richards to be a rather frequent cause of

Polyporus hirsutus cont.

decay and trunk splitting of orchard trees in Utah.

On fallen trunk of Betula fontinalis Sarg., 1 mile above Rotary Park in City Creek Canyon near Salt Lake City, Salt Lake Co., June 17.

Polyporus leucospongia Cke. & Harkn.:

On fallen decorticated trunks of Abies lasiocarpa (Hook.) Nutt., Tony Grove Lake, Bear River Range, Cache Co., June 24.

On fallen decorticated trunks of Picea engelmanni Parry. Same locality and date as the preceding.

On branches of fallen Pinus ponderosa var. scoolorum Engelm., La Sal National Park at points 27 and 31 miles west of Blanding, San Juan Co., May 15.

Polyporus munzii Lloyd:

Large imbricate mass of sporophores at base of dead tree of Populus fremonti S. Wats., St. George, Washington Co., Apr. 15. According to Dr. L. O. Overholts this was previously known only from Arizona and California.

Polyporus submaculatus Murr.:

On decorticated fallen sapling of Populus tremuloides Michx. on mountainside above Pine View Dam in Ogden Canyon, Weber Co., Sept. 3. This was described as a new species by Dr. W. A. Murrill (Mycologia 37 (1): 157. 1945).

Polyporus volvatus Pk.:

On recently dead alpine fir (Abies lasiocarpa (Hook.) Nutt., 1 1/2 miles west of Logan Canyon on Tony Grove Lake Road, Bear River Range, Cache Co., June 24.

Stropharia melanosperma (Bull.) P. Karst.:

On stony ground along lower portion of Jardine Juniper Trail from Cottonwood branch of Logan Canyon, Cache Co., June 10.

Trametes hispida Pass.:

On dead limbs and logs of Populus angustifolia James, Smithfield Canyon and High Creek east of Cove, Cache Co., Apr. 29 and June 3; on flank of Mt. Timpanogos, Utah Co., May 18.

On dead limbs of sweet cherry (Prunus avium L.) tree in orchard; also on hardwood fence post brace, Hurricane, Washington Co., Nov. 1.

FUNGI IMPERFECTI

Cryptosporium sp.:

On Tetradymia glabrata A. Gray, 20 miles north of Beatty, Nye Co., Nevada, Nov. 4. This fungus, which does not appear to be described, commonly forms abundant minute pycnidia on the leaves. It was later observed at other points in Nevada and appears to be widespread.

Cylindrosporium lutescens Higgins:

On Prunus virginiana var. demissa (Nutt.) Torr., Ogden Canyon east of Ogden, Weber Co., Sept. 3. Collections of this fungus by Dr. B. L. Richards from Tony Grove Lake and Smithfield Canyon, Cache Co., June, 1940, and Sept. 1, 1941, also have been examined. It is said by him to be very common.

Gloeosporium nervisequum (Fckl.) Sacc.:

On Platanus occidentalis L., causing considerable injury to street trees at American Fork, Utah Co., June 16. Dr. B. L. Richards reports this disease as widespread throughout northern Utah wherever American sycamore is planted. The oriental sycamore does not appear to be attacked.

Monilinia demissa (Dana) Honey:

On Prunus virginiana var. demissa (Nutt.) Torr., lower portion of Jardine Juniper Trail from Cottonwood Canyon, Cache Co., June 10. Reported by Dr. B. L. Richards to be a rather common cause of dying back of shoots.

Ovularia obliqua (Cke.) Cud.:

On Rumex crispus L., near Cache Junction, Cache Co., Oct. 22; La Verkin, Washington Co., Nov. 1.

Phyllosticta cacti (Berk.) Archer:

On dead stems of Opuntia acanthocarpa (Engelm.) Bigel., 5.3 miles on road from St. George to Veyo, Washington Co., Apr. 15. Associated with Teichospora mammoides Ell. & Ev.

Phyllosticta clematidis Ell. & Dearn.:

On Clematis douglasii Hook., Mt. Naomi region, Bear River Range, Cache Co. Coll. by Dr. B. L. Richards, Sept. 5, 1941.

Phyllosticta minutissima Ell. & Ev.:

See under Septoria aceris (Lib.) Berk. & Br.

Phyllosticta virginiana (Ell. & Halst.) Seav.:

On Prunus virginiana var. demissa (Nutt.) Torr., South Fork of Ogden River 7 miles east of Huntsville, Weber Co., Sept. 24. A collection of this fungus by Dr. B. L. Richards in Logan Canyon, Cache Co. also has been examined.

Septoria aceris (Lib.) Berk. & Br.:

On Acer glabrum Torr., Smithfield Canyon, Cache Co. Coll. by Dr. B. L. Richards, Sept. 1, 1941; City Creek Canyon near Salt Lake City, Salt Lake Co., Aug. 13; Ogden Canyon east of Ogden, Weber Co., Sept. 1; Timpanogos Cave in American Fork Canyon, Utah Co., Aug. 20. Causing abundant leaf-spotting, yellowing and premature defoliation.

On Acer grandidentatum Nutt., Ogden Canyon east of Ogden, Weber Co., Sept. 3.

On Acer negundo L., Island in Logan River near Logan, Cache Co. Coll. by Dr. B. L. Richards, Oct. 4, 1941; Ogden Canyon east of Ogden and at Ogden, Weber Co., Aug. 20 and Sept. 3; City Creek Canyon east of Salt Lake City, Salt Lake Co., Aug. 3; Timpanogos Cave in

Septoria aceris cont.

American Fork Canyon and at Mapleton, Utah Co., Aug. 20 and 21. This fungus is extremely common and widespread on both this species and A. glabrum. Phyllosticta minutissima Ell. & Ev. was associated with it in all the collections enumerated, and on A. glabrum this fungus usually was much more abundant than the Septoria. Gilman and Archer (The fungi of Iowa parasitic on plants, p. 418 . 1929) regard this fungus as a microspore stage of Septoria aceris and consider it synonymous.

Septoria aurea var. destruens Ell. & Ev.:

On Ribes aureum Pursh, Ogden Canyon east of Ogden, Weber Co., Sept. 3. Causing a leaf spot.

Septoria symphoricarpi Ell. & Ev.:

On Symphoricarpos vaccinioides Rydb., 15 1/2 miles up Logan Canyon, Cache Co., June 24.

Tubercularia vulgaris Tode:

On Prunus virginiana var. demissa (Nutt.) Torr., Smithfield Canyon, Cache Co., Apr. 29. On dead twigs and branches mostly killed by black knot.